

Pure Variants accelerates product development at PALFINGER

Global market leader relies on Pure Variants' solution for parameter management

Like most products, crane and lifting solutions have become increasingly complex due to the rising share of software. To reliably manage all control unit parameters of their lifting solutions, PALFINGER was in search of a suitable solution to handle the enormous variability of configurations – and found it with Pure Variants. Just two years after the project's start, the first loader cranes equipped with the latest control unit generation are already available.



As a producer and provider of crane and lifting solutions, PALFINGER is a global market leader. Founded in 1932 in Schärding, Austria, the company combines progress and tradition like few others. While the offered crane and lifting solutions used to be predominantly mechanical, much of it is nowadays automated through software.

Modern lifting solutions like PALFINGER's new TEC loader cranes are equipped with control units that must process hundreds or even thousands of parameters, depending on the model. This ultimately results in a sum of configuration options that is hardly manageable with conventional means and systems. To prevent such a scenario, PALFINGER proactively searched for a solution to manage all parameters - and found it. As a result, PALFINGER can now manage all parameters of the new control unit generation PALTRONIC 180 reliably and securely, thanks to the software solution Pure Variants from PTC.

“Other solutions were too restrictive”

“In many products, the share of software is increasing dramatically, posing a major challenge for developers,” says Dr. Christian Zingel, Head of the Competence Cluster “Systems Engineering”

at PALFINGER. “Our task is to help all product developers maintain an overview of these complex systems.” With around 800 developers working for PALFINGER, this is easier said than done. Still, with his team and colleagues from other departments, he managed to implement the management's requirements - within a very short time.

Two years ago, PALFINGER set the overall goal of finding a new solution for the parameter management of their crane and lifting systems. The management and developers at PALFINGER were well aware that the old tools were not a sustainable option. Their search led the people in charge of the



With Pure Variants, we help the product developers to maintain an overview of these complex systems.



Dr. Christian Zingel,
Head of the Competence Cluster
“Systems Engineering” at PALFINGER

project to the digital engineering experts of :em engineering methods AG - where Zingel worked as the head of the MBSE consulting team at the time. Even after Christian Zingel switched to PALFINGER, the experts from :em AG remained on board, and significantly contributed to the project's success.

As an expert in systems engineering, Christian Zingel and his team soon began searching for a suitable IT tool for the parameter management of the latest product generations. After thorough research, they ultimately decided to use Pure Variants from PTC. "Most of the other solutions that were considered were too restrictive," Zingel recalls. "With Pure Variants, we now have precisely the solution we need to meet the specific demands of PALFINGER," says the head of the Systems Engineering department.

"This allows us to effectively manage the enormous variance of different configuration options"

To optimize the cranes' performance, each individual crane at PALFINGER is parameterized and calibrated according to its specific configuration. Due to the configuration diversity, each crane receives its own parameter combination and specific settings, resulting in highly variable data. "Every detail must ultimately be taken into account, and all data must be managed flawlessly to ensure that each crane functions perfectly," explains Christian Zingel. "And that's exactly why we chose Pure Variants, as it allows us to effectively manage the enormous variance and wide range of different configuration options," says Zingel. "Software is the intelligence of the systems. Therefore, it is crucial to maintain an overview despite the large amount of highly interconnected data. Every piece of information must be available to incorporate it when needed," says the engineering IT expert. "With Pure Variants, we now have the necessary tool for that."

Worthwhile investment

PALFINGER currently uses 11 floating licenses of Pure Variants across the entire company for over 30 users. In the future, there may be even more, as the acceptance amongst the developers is high, and additional product lines have already started using Pure Variants. "This is an investment that has clearly paid off," states Christian Zingel.

The first series of loader cranes equipped with the new control units are already on the market, with more to follow. "It is impressive to see how quickly and professionally this project was implemented at PALFINGER," says Dr. Michael Schulze from PTC, who accompanied the introduction of Pure Variants at PALFINGER.

Ultimately, PALFINGER customers also benefit from the innovations, enabling them to effectively utilize new software functions and optimize their cranes' performance. In the near future, updates will be made "over the air" - via wireless updates. "Pure Variants helps us to offer such services," Zingel rejoices. Currently, the connectors to other authoring systems, such as requirements management or system modeling tools, offered by PTC are not yet used at PALFINGER. "However, it is good to know that these options are available, as this keeps us future-proof," Zingel looks ahead.



Everyone pulled together. Thanks to excellent teamwork and forward-thinking actions, PALFINGER is now wellpositioned for the future.

Dr. Michael Schulze,
Consultant at PTC

Positive verdict

"The kick-off at PALFINGER was only two years ago, and the hot phase started six months ago. And now there are already products on the market: That's extremely fast and very gratifying," Zingel concludes. The TÜV Süd also confirms that excellent work has been done here. PALFINGER customers can therefore be sure that they will continue to receive the best products - as they have been accustomed to since 1932.

About PALFINGER

The international technology and mechanical engineering company PALFINGER is the world's leading producer and provider of innovative crane and lifting solutions. With more than 12,500 employees (excluding temporary workers), more than 30 manufacturing sites, and a worldwide sales and service network of around 5,000 service points, PALFINGER meets its customers' challenges and creates added value. PALFINGER consistently continues its path as a provider of innovative, smart complete solutions with increased efficiency and better operability, leveraging the potentials of digitization along the entire production and value chain. PALFINGER's core product is the loader crane. In this segment, the company is the world market leader with over 100 models.



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Pure Variants

Pure Variants is a product line engineering (PLE) solution that seamlessly integrates into existing development processes to streamline product line development. This enhances efficiency and security in complex product development.

Pure Variants centralizes variability management across engineering assets, ensuring consistent results across product variants. With integrations to Codebeamer and over 20 engineering tools, it automates variant generation, enabling access to engineering assets like requirements and system models throughout a product's lifecycle.

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